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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,834	03/05/2002	Thomas F. Neal	11537-0004US	8566

28529 7590 01/13/2004

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EXAMINER

LAWRENCE JR, FRANK M

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,834

Applicant(s)

NEAL, THOMAS F.

Examiner

Frank M. Lawrence

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3,8-13,16-21 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 2,4-7,14,15 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet *within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.* The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. It is suggested that "breeding" be changed to ---breeding--- in claim 15, and "ton" be changed to ---to--- in line 7 of claim 22.
3. Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 appears to fail to further limit claim 17 because "more than 90%" is understood by the examiner to be fewer than "substantially all" as recited in claim 17. It is suggested that the limitations be switched between the claims.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 44,46. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 10 recites the limitation "the filter chamber that is upstream of the irradiation chamber" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. It appears that claim 10 should depend from claim 9 instead of claim 8, which would overcome the rejection. Claim 11 is rejected for being dependent from claim 10.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 8 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Engelhard (5,540,848).
10. Engelhard '848 teaches a filter system comprising an irradiation chamber (140) containing a biocidal UV lamp (78) extending the length of the chamber and creating ozone/oxygen along the length of the lamp within the chamber, a venturi (70) for injecting the created ozone/oxygen into water entering the chamber, a filter chamber connected serially downstream from the irradiation chamber (figure 1), the filter chamber having a water inlet and

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outlet to allow non-bypass filtration (abstract, col. 5, lines 33-39). The filter in the filter chamber includes a cylindrical medium that is supported between ridges (118, 126). The UV lamp will inherently prevent bacteria propagation on the downstream filter because of its bacteria-killing properties.

11. Claims 8, 10 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Beitzel (4,274,970).

12. Beitzel '970 teaches a water treating system comprising a filter chamber (32) having an inlet and outlet serially connected upstream from an irradiation chamber (12). The irradiation chamber includes a UV lamp (20) extending along its length for producing ozone/air, which is withdrawn and injected into the water stream entering the irradiation chamber at an aspirator (34). The filter is used to remove contaminants to avoid interference with the UV chamber (figures, col. 3, lines 57-68, col. 5, line 63 to col. 6, line 10).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelada (6,080,313) in view of Engelhard '848.

15. Kelada '313 discloses a modular water purification system, comprising a frame structure (44) for joining and supporting a plurality of chamber-defining canisters serially in a water path in side-by-side relation, the chambers including an irradiation chamber (22) and pre-filtration

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chambers (14, 20) for non-bypass filtration of the water (figures, col. 3, lines 29-43, col. 5, lines 61-67). The pre-filters will inherently substantially eliminate irradiation blockage by particulates down to 0.2 micron (col. 16, lines 4-6).

16. The instant claims differ from the disclosure of Kelada '313 in that the irradiation canister has an ozone treatment and oxygenation location along its length. Engelhard '848 discloses a water treatment system as discussed in paragraph 10 above. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the irradiation chamber of Kelada '313 to include the ozone/oxygen generating arrangement of Engelhard '848 in order to provide enhanced killing of any microorganisms present and to oxidize any undesirable compounds (abstract).

17. Claims 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beitzel '970 in view of Cohen et al. (4,595,498).

18. Beitzel '970 discloses all of the limitations of the claims as discussed above except that the system also includes a downstream filter having an inlet and outlet, the pre-filter removes over 90% of particulates greater than 5 microns, and the post-filter removes over 90% of particulates larger than 1 micron. Cohen et al. '498 disclose a water polishing system comprising a sub-micron ultra filter (280) downstream of an irradiation ozone-producing chamber (230) (figures, col. 2, lines 35-50, col. 3, lines 48-50). It would have been obvious to one having ordinary skill in the art at the time of the invention to include the post-filter of Cohen et al. '498 in the system of Beitzel '970 in order to provide a final polishing step that produces a very pure water stream to the end user. It is submitted that absent a proper showing of criticality of unexpected results, the filtration efficiency of the pre-filter is considered to be a parameter that

would have been routinely optimized by one having ordinary skill in the art at the time of the invention in order to minimize interference with the irradiation chamber.

19. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beitzel '970 in view of Engelhard '848.

20. Beitzel '970 discloses all of the limitations of the claims as discussed above except that the first filter is a hollow cylinder sealed at its ends in the filtration chamber and that the filter removes substantially all particles greater in size than 5 microns. Engelhard '848 discloses a water treatment system with a cylindrical filter element as described in paragraph 10 above. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the filter of Beitzel '970 by using the filter arrangement of Engelhard '848 in order to provide a simple design that has a large area for water flow to pass through the filtration media in a small chamber. It is submitted that the filtration efficiency of the filter would have been an obvious modification for the reason discussed in paragraph 18 above.

21. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beitzel '970 in view of Engelhard '848 as applied to claim 20 above, and further in view of Cohen et al. '498.

22. Beitzel '970 in view of Engelhard '848 disclose all of the limitations of the claim except that a second finer filter is provided downstream of the second chamber. Cohen et al. '498 disclose a water treatment system as described in paragraph 18 above. It would have been obvious to one skilled in the art to modify the system of the prior art by using a downstream fine filter for the same reasons given in paragraph 18.

23. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhard '848 in view of Beitzel '970.

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24. Engelhard '848 discloses all of the limitations of the claim as discussed above except that water is clarified in a pre-filter filtration chamber before it is introduced into the irradiation chamber. Beitzel '970 discloses a water treatment system having a filter upstream of an irradiation chamber as described in paragraph 12 above. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Engelhard '848 by using an upstream filter in order to provide a means for removing particulates that could interfere with the performance of the irradiation chamber.

Allowable Subject Matter

25. Claims 2, 4-7, 14, 15 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose water treatment systems having an ultraviolet unit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.

Frank M. Lawrence
Primary Examiner
Art Unit 1724

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Frank Lawrence
12-17-03